Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

In the Matter of	)	
	)	
Amendment of Part 90 of the	)	
Commission's Rules to Permit	)	WT Docket No. 11-69
Terrestrial Trunked Radio (TETRA)	)	
Technology	)	
	)	
Request by the TETRA Association for	)	
Waiver of Sections	)	ET Docket No. 09-234
90.209, 90.210 and 2.1043 of	)	
the Commission's Rules	)	
	)	

COMMENTS OF THE TETRA ASSOCIATION ON NOTICE OF PROPOSED RULEMAKING

On April 26, 2011, the Federal Communications Commission ("FCC") issued a Notice of Proposed Rulemaking ("NPRM")[1] seeking comment on the adoption of proposed rules to make permanent a waiver granted to the TETRA Association ("the Association").[2] Specifically, the proposed rules, by providing for slightly modified Part 90 bandwidth and emission limits, would allow Terrestrial Trunked RAdio ("TETRA") devices to operate in the United States. The Association believes that the waiver grant was in the public interest and, for the same reasons, the proposed rule changes should be adopted. The Association supports adoption of the proposed rules, with some modifications to the allowable frequencies.

DISCUSSION

The Association already has submitted a number of comments in the waiver proceeding addressing many of the issues raised in the NPRM and will address additional

[1] *Amendment of Part 90 of the Commission's Rules to Permit Terrestrial Trunked Radio (TETRA) Technology; Request by the TETRA Association for Waiver of Sections 90.209, 90.210 and 2.1043 of the Commission's Rules*, Notice of Proposed Rulemaking and Order, WT Docket No. 11-69 and ET Docket No. 09-234, 26 FCC Rcd 6503 (rel. April 26, 2011) ("*NPRM/Order*").
[2] *Request by the TETRA Association for Waiver of Sections 90.209, 90.210 and 2.1043 of the Commission's Rules*, Request for Waiver, ET Docket No. 09-234 (filed Nov. 20, 2009) ("Waiver Request").

points herein. To be clear, the overriding point is that there is no reason for the FCC to ban TETRA devices from any specific frequency band or service.[3]

Sufficiency of TETRA Interference Protection

Some parties have opposed the TETRA waiver and rulemaking based on a misguided view that TETRA devices will interfere with incumbent users. As the Association has shown previously, these parties have failed to provide any technical basis for their claims.[4] Moreover, the FCC has concluded that TETRA devices will not cause harm to other users.[5]

The Commission has made a preliminary finding that TETRA devices provide sufficient interference protection to other technologies and seeks comment on this issue with regard to the proposed rule changes. As the FCC has noted, no technical argument has been offered to show that TETRA would cause interference. The Association has demonstrated in its original submission and subsequent filings that TETRA generates less power into adjacent channels than most other technologies already in operation in the U.S.[6] The FCC concurs.[7] Experience from installations in 121 countries around the world demonstrates that TETRA can and does coexist with other technologies without causing interference. We are confident that experience from systems operating in the U.S. under the waiver will demonstrate this in practice.

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[3] The Association notes that the frequencies listed in its request for waiver were merely examples of where TETRA could operate in the United States, and not a requested limitation. *See* Waiver Request at 3. Moreover, ETSI presently is examining whether to specify a TETRA standard for as low as 150 MHz. TETRA devices should be able to operate on any U.S. frequency band where TETRA can meet the other operational and service rules.

[4] *See, e.g.*, Waiver Request at Attachment A; *Reply Comment of the TETRA Association*, ET Docket No. 09-234 (filed Jan. 29, 2010) ("*Waiver Reply Comments*"); *Consolidated Response of the TETRA Association to Requests for Clarification, Request for Limited Reconsideration, and Petition for Declaratory Ruling*, at 3-4, WT Docket No. 11-69, ET Docket No. 09-234 (filed June 8, 2011) ("*Consolidated Response*").

[5] *See* NRPM/Order at ¶ 9.

[6] *See* Waiver Request, Waiver Reply Comments, and Consolidated Response.

[7] NPRM/Order at ¶ ¶ 9 and 20.

Authorized Bandwidth

The Commission has proposed to modify Section 90.209(b)(5) to increase slightly, from 20 kHz to 22 kHz, the authorized bandwidth for devices operating within the more stringent TETRA ACP limits.[8] The Commission seeks comment on this specific proposal and also asks whether it should be more flexible with the authorized bandwidth.[9]

The FCC properly concluded that an increase from twenty to twenty-two kilohertz bandwidth is not likely to have a significant impact on adjacent channel interference and that TETRA's ACP performance is more than sufficient to protect adjacent channel users. With regard to the suggestion of allowing flexibility in the occupied bandwidth, we respectfully suggest that the FCC consider utilizing ACP as a means of specifying out of channel interference protection as is currently used in the 700 MHz public safety bands.

Emission Mask

The Commission also proposes, as an alternative to meeting the Section 90.210 emission masks, that equipment that complies with the TETRA ACP limit for emissions close to the carrier (up to 75 kHz offset) may be authorized, and for offset frequencies greater than 75 kHz the default Part 90 emission limit of 43 + 10log(P) should apply.[10]

The Association believes that the proposed rule is practical and will offer sufficient protection from interference. This conclusion is based on the analysis carried out using simulation and, more importantly, the years of operating experience around the world in countries where TETRA is operating in close proximity to other technologies.[11]

Cellular Architecture

The Commission also seeks comment on whether it should impose restrictions on the use of TETRA technology with low elevation, cellular-type architecture, and in

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[8] NPRM/Order at ¶ 10.
[9] *Id*.
[10] NPRM/Order at ¶ 11.
[11] *See Waiver Request* and *Waiver Reply Comments*.

particular whether to adopt the Section 90.7 "high density cellular system" applicable to the ESMR service.[12]

The TETRA Association opposes any effort to restrict TETRA to those frequencies in the 800 MHz band allocated to high density cellular systems. TETRA does not need the capacity of commercial cellular systems, so TETRA systems frequently use higher-powered base stations (with ERPs of up to 100 watts) than cellular systems use. The end result is that TETRA systems use fewer sites and the cell radii are typically between 25 and 35 miles, which is much larger than cellular system cells. Thus, even though TETRA systems may use a cellular frequency plan, they operate like any other LMR system.[13] Therefore, it would not be appropriate to treat TETRA like cellular systems. Moreover, given the small number of TETRA base stations, the Association notes that the potential for near/far issues to adjacent channel users is quite limited.[14]

In the event, however, that a TETRA system employed a higher density cellular-like system, then appropriate frequency planning would be followed to ensure that the potential of near/far interference is avoided. For these reasons, the Association believes that the restriction on the use of the 800 MHz band in the Waiver Order is unduly restrictive and the Section 90.7 definition of "high density cellular system" should not apply to TETRA devices.

Other Rule Changes and Limitation on Bands and/or Services

Finally, the Commission seeks comment on whether additional rule changes are necessary and, in particular, whether TETRA technology should be limited to or excluded from certain bands or services.[15] The Commission asks specifically whether TETRA should be allowed on the public safety frequencies and, if so, how would interoperability work and should restrictions be imposed on TETRA technology in those frequencies.[16]

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[12] NPRM/Order at ¶ 12.
[13] In contrast, cellular systems use low powered base stations and have much smaller cells.
[14] The Association has discussed previously these near/far issues in relation to the size of the TETRA cell sites. *See* Waiver Reply Comments at n.17.
[15] NPRM/Order at ¶ ¶ 13-15.
[16] NPRM/Order at ¶ ¶ 14-15.

TETRA is one of the modern digital technologies that is designed to operate harmoniously with other technologies. The Harris OpenSky technology is technically very similar to TETRA and other technologies such as DMR, Moto Turbo, NXDN, Nexedge and dPMR are being deployed within the U.S. TETRA should not be excluded from any frequency bands in which other modern digital technologies are allowed. It is of benefit to U.S. consumers to encourage competition and to provide greater choice. There is no technical reason why TETRA should be subjected to exclusions that are not applied to similar technologies.

The Association recognizes and appreciates the decisions taken to adopt a common standard (Project 25) for mainstream public safety operations. As it has stated before in this proceeding, the Association does not intend to promote TETRA to the public safety community. However, there are a number of users, such as utilities, that may need to interoperate with public safety users on occasion. For this reason, TETRA should be permitted on public safety pool frequencies.

Interoperability can be provided by a variety of technical solutions, either with multi-mode radios, radio voice gateways or system gateways between different systems. It is surely up to the contracting party to stipulate whether certain standards such as Project 25 and Analog FM be required, and to specify as such in a request for proposal.

In terms of interoperability between different system architectures, the most likely interconnection requirement involving TETRA devices would be between users such as the utilities or transport companies, and public safety organizations that have already deployed Project 25. If these two types of users have similar coverage areas, it is not necessary to use the same technology. Typically, interoperability between systems employing different technologies is provided through the use of gateways. These gateways require cooperation between vendors to ensure that the appropriate protocols are made available by both suppliers, but this is quite possible to achieve. Such gateways

are already being provided by TETRA vendors, and some are available as free-of-charge open interfaces.[17]

It is perhaps worthy of note that many TETRA vendors are moving, or have moved, to an all IP-based architecture. This can make interconnection of TETRA and other systems considerably easier to achieve. Indeed, the European Telecommunications Standards Institute (ETSI) is considering a proposal to update the Inter System Interface (ISI) to an IP-based architecture. Another option – providing multimode handsets –is technically possible, though not very economical at this point. However, developments in Reconfigurable Radio Systems ("RRS") and cognitive radios may change this situation in the future.

CONCLUSION

For the foregoing reasons, the Association urges the Commission to adopt its proposed rules, as set forth above.

Respectfully submitted,

The TETRA Association

/s/_____

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[17] For example, Cisco has an IPICS product with this sort of functionality, which could be made to work with TETRA systems.

CERTIFICATE OF SERVICE

I hereby certify that a true and correct copy of the foregoing Comments of the TETRA Association on the Notice of Proposed Rulemaking, was sent by United States mail, first class postage prepaid, on this 27th day of June, 2011, to the following:

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